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PATENT

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

3 In re Application of:) Atty. Dkt. No. 00.05.12.1
4 Steven B. Laramay and) Art Unit: 1617
5 John H. Schneider)
6 Serial No. 09/770,931) Examiner: Gina C. Yu
7 Filing Date: January 26, 2001)
8 Title:) Duncan, Oklahoma 73534
9)
10 ENCAPSULATED COMPOSITIONS) Date: January 27, 2004
11
12

BRIEF ON APPEAL

13 Commissioner for Patents
14 P.O. Box 1450
15 Alexandria, Virginia 22313-1450

16 Sir:

INTRODUCTION

18 The Second Final Rejection of the claims of the above application was mailed by the
19 Patent Office on September 23, 2003. Applicants' response to the Second Final Rejection was
20 mailed on November 5, 2003. The reply of the Examiner to the response was mailed by the
21 Patent Office on December 15, 2003. The Notice of Appeal from the Second Final Rejection
22 was mailed on December 15, 2003. This is Appellants' Brief in support of the Appeal from the
23 Second Final Rejection.

24 This Brief is filed in triplicate, and is accompanied by the prescribed fee of \$330.00.

REAL PARTY IN INTEREST

26 Fritz Industries, Inc., a Corporation of the State of Texas, is the real party in interest.

RELATED APPEALS AND INTERFERENCES

28 There are no known appeals and/or interferences related to the subject matter of the
29 claims appealed herein.

STATUS OF CLAIMS

31 A total of 19 claims are pending in this application including one independent claim 16
32 and eighteen dependent claims 17 through 30, and 32 through 35. Dependent claim 31 has
33 been canceled. Dependent claims 29, 32 and 33 have been withdrawn from consideration.

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34 Claims 16-28, 30, 34 and 35 stand rejected. The rejection of claims 16-28, 30, 34 and 35 is
35 appealed.

36 The dependency pattern of the claims on appeal is attached hereto as Enclosure I. A
37 copy of the claims involved in the appeal is attached as Enclosure II. The content of Enclosure
38 II is taken from Applicants' response mailed July 8, 2003.

39 SUMMARY OF INVENTION

40 (The parenthetical information indicates disclosure support of
41 each claim appealed by page, P, and line, L.)

42 This invention is an article of manufacture comprised of a capsule and a chemical
43 composition. The capsule comprises a membrane wall surrounding a hollow interior. The
44 composition is enclosed in the hollow interior of the capsule. The membrane wall is permeable
45 to water and aqueous solutions, but is not soluble in aqueous liquids. (P.5, L.105-110, Claim
46 16) The composition enclosed in the hollow interior of the capsule is, preferably, a solid, water-
47 soluble chemical. The composition is not reactive with, soluble in nor a solvent for the
48 membrane wall. (P.6, L.124-126, L. 141, Claim 16)

49 The membrane wall is comprised of a first material or is a composite material comprised
50 of the first material and a second material different from the first material. The membrane wall
51 is not reactive with, soluble in or a solvent for the composition enclosed in the capsule, or with a
52 liquid or second composition in contact with the exterior of the membrane wall. (P.5, L. 110-123,
53 Claim 16, Claim 18) The composite material is present in the article in an amount in the range
54 of from about 10 to about 50 percent composite material by weight of the article. (P.8, L.236-
55 239, Claim 18)

56 The first material is a urethane/vinyl hybrid polymer. (P.5, L.115, Claim 16) The first
57 material is disclosed in U.S. Patent 5,173,526 to Vijayendran et al. (P.7, L.154-171; P.8, L.172-
58 180, Claim 16) The first material is not a mere blend of a polyurethane and an acrylic polymer.
59 (P.7, L.170-171)

60 The first material can be cross linked with polyaziridines, carbodiimides, epoxies and
61 metal ion cross linkers. (P.8, L.181-186, Claim 19, Claim 22, Claim 24, Claim 25, Claim 30,
62 Claim 34, Claim 35)

63 The second material (in the composite material) is a particulate solid having a particle
64 size in the range of from about 1 to about 15 microns present in the composite material in an
65 amount in the range of from an amount greater than about 0 to about 50 percent of the
66 particulate solid by total weight of the composite material. (P.8, L.187-195, Claim 18)

67 The second material (in the composite material) can include silica, calcium carbonate,
68 titanium dioxide, barium sulfate, calcium sulfate and mixtures thereof. (P.9, L.198-199, Claim
69 20, Claim 28)

The chemical composition enclosed in the capsule can be substantially any water-soluble material including those selected from the group consisting of alkali, alkaline earth metal and ammonium halides, oxides, hydroxides, carbonates, bicarbonates, perborates, peroxides, percarbonates, bisulfates and persulfates. (P.9, L.200-207, Claim 17) The chemical composition has a particle size in the range of from about 10 to about 60 mesh US Sieve series. (P.10, L. 243 to P.11, L.247, Claim 21, Claim 23, Claim 26, Claim 27)

In use, the exterior surface of the capsule is placed in contact with a liquid containing water. The membrane wall is not reactive with, soluble in nor a solvent for liquid in contact with the exterior surface of the capsule. The water diffuses through the membrane wall, contacts and dissolves the composition in the interior of the capsule. The composition, now in aqueous solution, then diffuses through the membrane wall to the exterior of the capsule. During the diffusion, which can extend over a period of time, the capsule remains intact. It does not burst. The transfer of the composition from the interior of the capsule through the membrane wall to the exterior of the capsule is gradual in nature. The transfer is not sudden in nature. (P.12, L.269 to P.13, L.294)

ISSUES

ISSUE 1

The combination of Mitchell and Vijayendran to reject the claims is not proper. The combination of Mitchell and Vijayendran, taken as a whole, does not suggest the claimed subject matter.

ISSUE 2

There is no suggestion in either Mitchell or Vijayendran to combine one with the other to produce the claimed subject matter.

ISSUES 3, 4 and 5

The Examiner, in the Second Final Rejection, rejected claims 16-28, 30, 34 and 35 under 35 USC 103(a) as being obvious over US Patent 5,741,433 to Mitchell in view of US Patent 5,173,526 to Vijayendran. No other references were relied upon by the Examiner in the rejection.

In contrast, the Examiner, in the Office Action mailed May 12, 2003, which next preceded the Second Final Rejection, rejected claims 16, 17 and 21 under 35 U.S.C. 103(a) as being obvious over Mitchell in view of Vijayendran. Mitchell and Vijayendran were combined with other references to reject the balance of the claims. Those other references were US Patent 4,756,844 to Walles and US Patent 6436540 B1 to Garcia.

The Examiner combined Mitchell, Vijayendran and Walles to reject claims 18, 20, 23, 34, and 35. The Examiner combined Mitchell, Vijayendran, Walles and Garcia to reject claims 19, 22, 24, 25, 26, 27, 28 and 30.

106 ISSUE 3

107 Walles and Garcia have been withdrawn and are no longer references against any
108 claims, and specifically claims 18, 19, 20, 22, 23, 24, 25, 26, 27, 28, 30, 34 and 35. The basis
109 for rejecting these claims, if any, must be suggested in the combination of Mitchell and
110 Vijayendran.

111 ISSUE 4

112 There is no reference of record disclosing a composite material comprised of a
113 combination of a first material and a second material to form the membrane wall of a capsule.
114 The particle size of the second material is greater than submicron. Dependent claim 18, and
115 those which depend from claim 18, contain limitations regarding the composite material and the
116 particle size of the second material. Accordingly, claims 18, 20, 22, 23, 25, 27, 28, 30 and 34
117 are drawn to subject matter not disclosed any reference of record. The basis for rejecting these
118 claims, if any, must be suggested in the combination of Mitchell and Vijayendran.

119 ISSUE 5

120 There is no reference of record disclosing that the urethane/vinyl hybrid polymer which
121 is disclosed in Vijayendran, and specifically named in claim 16, can or should be cross linked.
122 Vijayendran does not disclose that the urethane/vinyl hybrid polymer can be or should be cross-
123 linked. Dependent claim 19, and those which depend from claim 19, dependent claim 22, and
124 those which depend from claim 22, claim 34 and claim 35 contain limitations regarding cross
125 linking the urethane/vinyl hybrid polymer. Accordingly, claims 19, 24, 26, 22, 25, 27, 28, 30, 34
126 and 35 are drawn to subject matter not disclosed in any reference of record. The basis for
127 rejecting these claims, if any, must be suggested in the combination of Mitchell and
128 Vijayendran.

129 GROUPING OF CLAIMS

130 Claims 16-28, 30, 34 and 35 are all placed by the Examiner in a single group and are
131 the subject of a single rejection. The claims of this single group do not stand or fall together.
132 There are several different claim groups included within the single group which are separately
133 patentable. These claim groups are:

134 Claim 16, and those which depend therefrom;

135 Claim 18, which includes the limitations of claims 16 and 17, and those which depend
136 from claim 18;

137 Claim 19, which includes the limitations of claims 16 and 17, and those which depend
138 from claim 19;

139 Claim 22, which includes the limitations of claims 18 and 20, and those which depend
140 from claim 22;

- 141 Claim 34, which includes the limitations of claims 18 and 20;
- 142 Claim 28, which includes the limitations of claim 22, and those which depend from claim
143 28; and
- 144 Claim 35, which includes the limitations of claims 16, 17 and 21.

145 ARGUMENT

146 The problem confronted by Appellants for solution was to identify a material useful to
147 form the wall of a capsule having controlled release properties. The prior art at the time of the
148 invention did include capsules which did exhibit controlled release properties. These capsules
149 did exhibit a variety of release mechanisms including external crushing, internal rupture and
150 disintegration of the wall material and diffusion of liquid through the wall material. (P.2, L.29-38;
151 P. 3, L.59-63) The essential differences between the prior art capsules has been, and is, the
152 material of construction of the wall. (P.2, L.45-48)

153 The problem confronted herein was to make a capsule having controlled release
154 properties, wherein the material in the wall of the capsule would function by diffusion while, at
155 the same time, having the ability to resist a caustic environment exhibited by the chemical
156 enclosed in the capsule and by the chemical in contact with the exterior of the capsule. Such
157 chemicals would include organic and inorganic acids, bases, salts and oxidizers. In short,
158 Appellants were seeking to find a universal material.

159 ISSUE 1

160 The combination of Mitchell and Vijayendran to reject the claims is not proper.

161 Appellants claim a hollow capsule which contains a chemical composition, wherein the
162 wall of the capsule is a membrane comprised of a polyurethane-vinyl polymer dispersion. In the
163 invention an aqueous liquid diffuses through the membrane wall to the interior of the capsule,
164 dissolves the chemical composition to form a solution which then diffuses through the
165 membrane wall to thereby release the composition from the interior of the capsule. Applicants
166 discovered this property of a membrane wall made with the polyurethane-vinyl polymer
167 dispersion and realized its universal utility in a capsule having controlled release properties.
168 The membrane wall, as set forth in independent **claim 16**, is comprised of a urethane/vinyl
169 hybrid polymer which is disclosed in U.S. Patent 5,173,526 to Vijayendran. The chemical
170 composition held in the capsule can include a wide variety of different chemical species such as
171 enzymes, organic and inorganic acids, bases, salts and oxidizing agents. (P.6, L.124-135)

172 Mitchell does not disclose or suggest "a polyurethane-vinyl polymer dispersion" and,
173 accordingly, cannot suggest that a polyurethane-vinyl polymer dispersion is useful as a film
174 former having controlled release properties. (Mitchell, col. 3, lines 43-45, col. 6, lines 1-5)

175 Mitchell did not make or suggest the discovery of this invention and made no suggestion
176 of the universal utility of the material.

177 Mitchell, in Table 2, discloses a variety of specific compositions including at least two
178 which, "were not acceptable coating materials due to the sticky nature of the polymers" and two
179 which, "were found to be non film formers." The two "sticky" polymers were vinyl polymers.
180 One of the "non film formers" was a vinyl polymer. Table 2 of Mitchell also listed two
181 polyurethanes, but no working example is provided, and no comment is made with regard to the
182 utility of a polyurethane as a film former having controlled release properties.

183 Mitchell makes no suggestion that a combination of the sticky/non film former vinyl with
184 the polyurethane would produce a satisfactory membrane. In fact, as previously noted, "The
185 first material is not a mere blend of a polyurethane and an acrylic polymer. (P.7, L.170-171)".
186 It is submitted that the factual data actually provided by Mitchell teaches away from such a
187 combination. Mitchell does not suggest "a polyurethane-vinyl polymer dispersion" and it is not
188 reasonable to assert that he does. The negative teaching of Mitchell is clearly indicated by the
189 disclosed sticky nature and lack of utility of some vinyl polymers and the notable absence of
190 any display of enthusiasm for polyurethane.

191 Mitchell stated, "Any type of coating material conventionally known in the art which
192 provides controlled-release properties may be used in the present invention." (Col. 3, lines 43-
193 45) In this regard, the composition disclosed and claimed by Vijayendran was known in the art
194 on the date that Mitchell et al filed their application. However, there is no indication in Mitchell
195 or Vijayendran that the composition of Vijayendran on that date was "conventionally known in
196 the art" to be a film forming material which provides controlled-release properties. Mitchell
197 failed to recognize the utility of the Vijayendran material and the Patent Office placed the two
198 patents in two different technical classifications. It was left to Applicants to discover the
199 universal utility of the composition disclosed by Vijayendran.

200 Vijayendran does disclose a flexible surface made from a urethane/vinyl hybrid polymer
201 dispersion which will protect a substrate, such as paper, metals, plastics and wood, from
202 solvents, corrodants and abrasives. It is inherent in this teaching that water, a solvent, will not
203 pass through the surface to contact the substrate. Vijayendran does not teach the opposite.
204 Thus, there is no suggestion in this teaching that water will pass through a film made with the
205 very same composition. In short, there is no suggestion in this teaching that the composition of
206 Vijayendran was, "conventionally known in the art" to be a film forming material which provides
207 controlled-release properties.

208 The Examiner has placed considerable emphasis on the flexible nature of the
209 Vijayendran material as a coating for substrates at least within the context of the Vijayendran
210 disclosure. The Examiner leaped, with no defined reason to justify the leap, from a "flexible
211 surface" which does protect a substrate, to a membrane having diffusion properties which does
212 not protect a substrate. Any number of materials are flexible, but all such materials have no
213 known function as a membrane. Steel, leather, paper, aluminum foil and rubber are but a few
214 flexible materials which are not conventionally known in the art to provide controlled-release
215 properties. The fact of flexibility does not translate into a film which permits diffusion.

216 As employed in the article of this invention, the Vijayendran material **DOES NOT**
217 **PROTECT THE SUBSTRATE** (the composition enclosed in the capsule) from anything. If it
218 did, then the material would not be operable in this invention. Vijayendran does not teach and

219 does not suggest the use of his composition as a membrane wall of a capsule. It is not the
220 purpose of a capsule having controlled-release properties to protect the substrate.

221 The combination of Mitchell and Vijayendran, taken as a whole, does not suggest the
222 claimed subject matter.

223 ISSUE 2

224 There is no suggestion in either Mitchell or Vijayendran to combine one with the other to
225 produce the claimed subject matter.

226 It is accepted in the law of obviousness that a reference must clearly suggest to a
227 person skilled in the art at the time of the invention, that a feature disclosed in one reference
228 may be combined with features disclosed in another reference in order to obtain the claimed
229 subject matter. What is resident in the disclosures of Mitchell and Vijayendran to suggest that a
230 combination of the two would produce the invention claimed herein? Nothing. The essential
231 recognition is contained in the disclosure of Applicants. That teaching cannot be employed by
232 the Examiner in hindsight.

233 What do Mitchell et al disclose?

234 A membrane wall which will permit water to pass through it from the exterior into the
235 interior of the capsule, and through it from the interior to the exterior of the capsule.

236 What do Mitchell et al fail to disclose?

237 A membrane wall comprised of a urethane/acrylic hybrid polymer.

238 Crosslinking anything.

239 A membrane wall containing a particulate solid or any other second material.

240 What is the novel aspect of Mitchell et al?

241 Based upon the content of claim 1 of Mitchell, it is clear that the novel aspect of Mitchell
242 et al is a polymeric coating material for a capsule, "comprising terpolymers containing vinyl
243 acetate, vinyl versatate, and alkyl(meth)acrylate monomer subunits."

244 What do Vijayendran et al disclose?

245 A flexible surface which will protect a substrate, such as paper, metals, plastics, and
246 wood, from solvents, corrodants and abrasives. Inherent in this disclosure is a requirement that
247 water shall not pass through the surface to thereby contact the substrate.

248 What do Vijayendran et al fail to disclose?

249 The use of a urethane/acrylic hybrid polymer as a membrane wall of a capsule.

250 The use of a urethane/acrylic hybrid polymer which will not protect a substrate.

251 Crosslinking a urethane/acrylic hybrid polymer.

252 Combining the urethane/acrylic hybrid polymer with a particulate solid or any other
253 second material.

254 There is no suggestion in Mitchell to replace his novel polymeric coating, which does
255 permit water to pass through it, with a urethane/acrylic hybrid polymer, which does not permit
256 water to pass through it. There is no suggestion in Vijayendran to substitute a urethane/acrylic
257 hybrid polymer, which does protect a substrate, for terpolymers containing vinyl acetate, vinyl
258 versatate, and alkyl(meth)acrylate monomer subunits, which do not protect a substrate.

259 Given the above, what is the reason to combine Mitchell and Vijayendran? The two
260 patents solve different problems. The two patents employ different chemistry to solve the
261 different problems. What is disclosed in Mitchell to suggest to a person skilled in the capsule
262 art to combine Mitchell and Vijayendran to obtain a capsule? Similarly, what is disclosed in
263 Vijayendran to suggest to a person skilled in the capsule art to combine Mitchell and
264 Vijayendran to obtain a capsule which will permit water to pass through its wall from the exterior
265 into the interior, and through the wall from the interior to the exterior? Vijayendran disclose a
266 urethane/vinyl hybrid polymer to protect what is plainly a planar substrate, such as paper, from
267 a solvent. There is no suggestion in Vijayendran that water will diffuse through a film made with
268 that polymer. There is no suggestion that a film could even be made with that polymer.
269 Mitchell and Vijayendran are in different classes of art. The only connection between Mitchell
270 and Vijayendran is found in the disclosure of this invention.

271 THERE IS NO REASON TO COMBINE MITCHELL AND VIJAYENDRAN. THE
272 EXAMINER HAS IMPROPERLY EMPLOYED THE DISCLOSURE OF THIS INVENTION AS A
273 GUIDE TO REJECT THE CLAIMS OF THIS INVENTION. THE REJECTION IS FATALLY
274 FLAWED AND SHOULD BE WITHDRAWN.

275 ISSUE 3

276 Walles and Garcia have been withdrawn and **are no longer references** against any
277 claims, and specifically claims 18,19, 20, 22, 23, 24, 25, 26, 27, 28, 30, 34 and 35. The basis
278 for rejecting these claims, if any, must be suggested in the combination of Mitchell and
279 Vijayendran.

280 The Examiner, in the paper mailed December 15, 2003, stated that,

281 "No rejection in the May 11, 2003 (sic) Office action has been withdrawn, as it is
282 clearly manifested in the rejection statement that claim rejection was made under
283 35 U.S.C. § 103 (a) over Mitchell (US 5741433) in view of Vijayendran et al. (US
284 5173526) is maintained for the reasons of record."

285 Refer to the Office Action mailed May 12, 2003, and note that there was not one, but
286 there were **three** rejections under section 103. In the first rejection, claims 16, 17 and 21 were
287 rejected over Mitchell in view of Vijayendran. In the second rejection, claims 18, 20, 23, 34, and
288 35 were rejected over the combination of Mitchell, Vijayendran and Walles (US 4,756,844). In
289 the third rejection, claims 19, 22, 24, 25, 26, 27, 28 and 30 over the combination of Mitchell,
290 Vijayendran and Garcia(US 6,436,540 B1).

291 The Second Final Rejection does not mention Walles or Garcia. The Second Final
292 Rejection does not even mention the three separate rejections. The Second Final Rejection,
293 instead, states a **new ground of rejection** wherein all of the claims are now rejected under the
294 combination of Mitchell in view of Vijayendran. The Second Final Rejection is at least suspect
295 in view of the new ground and for that reason it should be dismissed. To quote the Examiner,
296 the only thing "clearly manifested" in the May 2003 rejection is that claims 16, 17 and 21 were
297 rejected under the combination of Mitchell and Vijayendran and no others. Accordingly, claims
298 18, 19, 20, 22, 23, 24, 25, 26, 27, 28, 30, 34 and 35, as stated in Applicants' response to the
299 Second Final Rejection was mailed on November 5, 2003, should stand allowed. At best, the
300 only basis for rejecting claims 18, 19, 20, 22, 23, 24, 25, 26, 27, 28, 30, 34 and 35, if any, must
301 be suggested in the combination of Mitchell and Vijayendran.

302 ISSUE 4

303 There is no reference of record disclosing a composite material comprised of a
304 combination of a first material and a second material to form the membrane wall of a capsule.
305 The particle size of the second material is greater than submicron. Dependent claim 18, and
306 those which depend from claim 18, contain limitations regarding the composite material and the
307 particle size of the second material. Accordingly, claims 18, 20, 22, 23, 25, 27, 28, 30 and 34
308 are drawn to subject matter not disclosed any reference of record. The basis for rejecting these
309 claims, if any, must be suggested in the combination of Mitchell and Vijayendran.

310 The Examiner in the Office Action mailed May 12, 2003, stated,

311 "Mitchell and Vijayendran, discussed above, fails to teach using
312 the second materials in the encapsulation as recited in the instant
313 claims."

314 The Examiner also stated in the Office Action mailed May 12, 2003,

315 "Walles teaches controlled-release composition having a water
316 permeable membrane comprising submicron particles
317 (anticoalescent agents), which encapsulate a liquid or solid active
318 agent."

319 In view of the action and the express statements of the Examiner, what is there to justify
320 the rejection of claims 18, 20, 22, 23, 25, 27, 28, 30 and 34? Even, if Walles was still a
321 reference, a disclosure of "submicron particles" cannot be said to suggest particles greater
322 than submicron.

323 ISSUE 5

324 There is no reference of record which teaches or suggests that the urethane/vinyl hybrid
325 polymer, once having been made in accordance with the method disclosed in Vijayendran, can
326 or should be cross linked. The Examiner has not pointed to any such teaching in that patent.
327 Dependent claim 19, and those which depend from claim 19, dependent claim 22, and those
328 which depend from claim 22, claim 34 and claim 35 contain limitations regarding cross linking

the urethane/vinyl hybrid polymer. Accordingly, claims 19, 24, 26, 22, 25, 27, 28, 30, 34 and 35 are drawn to subject matter not disclosed and not suggested in any reference of record. The basis for rejecting these claims, if any, must be suggested in the combination of Mitchell and Vijayendran.

Specific Response to Comments of Examiner

Contrary to the assertions of the Examiner, the sticky polymer disclosed by Mitchell is not the polymer disclosed by Vijayendran.

That the polymer of Vijayendran can be used as claimed in this invention does not "flow naturally" from the assertion of Vijayendran that the polymer forms a flexible surface which will protect a substrate, such as paper, metals, plastics, and wood, from solvents, corrodants and abrasives. A flexible protective cover on a substrate does not, by that assertion, teach or suggest a film on a capsule which does **not** protect material enclosed in the capsule.

Neither Vijayendran nor Appellants say anything at all about the permeability of the polymer as a material of construction. Vijayendran does talk about a coating which is applied by "conventional flexographic or gravure methods." Applicants talk about a film made by a fluidized bed process. The manufacturing techniques are different. One technique produces a coating which obviously resists diffusion. The other technique produces a film which does not resist diffusion. In this regard claim 16 talks about a membrane which is permeable. There is nothing in the claim which says anything at all about the permeability of the material itself.

The "good balance" argument asserted by the Examiner is **specious**. Vijayendran did state that his coating has good balance. That statement cannot be interpreted to mean that Vijayendran deliberately placed defects in his continuous coating. Such defects would certainly defeat the purpose of his protective coating. If Vijahendran had really intended to manufacture his protective coating in such a way as to compromise the integrity of the coating, then he would have been explicit. Remember, Vijahendran specifically disclosed a coating which is applied by "conventional flexographic or gravure methods." He said nothing about modifying the coating or the method of making it.

There is nothing in the art that specifically teaches that a protective coating, such as taught by Vijayendran, also permits diffusion. If there is, then the Examiner has not cited it.

This application is in condition for allowance. Reconsideration and allowance is requested:

Respectfully submitted,

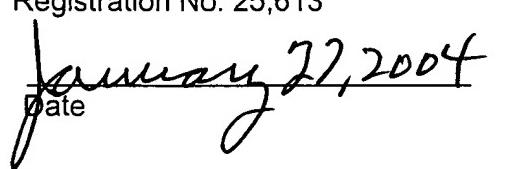
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CERTIFICATE OF MAILING

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Date

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ENCLOSURE I

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DEPENDENCY CLAIM PATTERN

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406 **ENCLOSURE II**

407 **COPY OF CLAIMS INVOLVED IN APPEAL**

408 **Claim 16**

409 An article of manufacture comprising a capsule and a first
410 chemical composition, said capsule having a hollow interior and an enclosing membrane wall
411 having an interior surface and an exterior surface, wherein said first chemical composition is
412 enclosed within said hollow interior of said capsule;

413 said membrane is permeable to water and aqueous solutions, but is not soluble in
414 aqueous liquids, and includes at least a first material comprised of a polyurethane-vinyl polymer
415 dispersion prepared by the simultaneous polymerization of a vinyl monomer and chain
416 extension of an isocyanate-terminated polyurethane pre-polymer in the presence of water to
417 thereby form a urethane/vinyl hybrid polymer; and

418 said first chemical composition is comprised of a solid, water-soluble chemical
419 composition which is not reactive with, soluble in or a solvent for said membrane.

420 **Claim 17**

421 The article of claim 16 wherein said first chemical composition is selected from the
422 group consisting of alkali, alkaline earth metal and ammonium halides, oxides, hydroxides,
423 carbonates, bicarbonates, perborates, peroxides, percarbonates, bisulfates and persulfates.

424 **Claim 18**

425 The article of claim 17 wherein said membrane is a composite material comprised of
426 said first material and further comprised of a second material, wherein said first material is a
427 supporting matrix for said second material which is fixed in said supporting matrix;

428 said second material is a particulate solid, having a particle size in the range of from
429 about 1 to about 15 microns, present in said composite material in an amount in the range of

430 from an amount greater than about 0 to about 50 percent of said particulate solid by total weight
431 of said composite material;

432 said second material is different from said first material, and is not reactive with, soluble
433 in or a solvent for said first material or said first chemical composition; and
434 said composite material is present in said article in an amount in the range of from about
435 10 to about 50 percent by weight of said composite material by weight of said article.

436 **Claim 19**

437 The article of claim 17 wherein said first material is reacted with a cross linking agent
438 selected from the group consisting of polyaziridines, carbodiimides, epoxies and metal ion cross
439 linkers.

440 **Claim 20**

441 The article of claim 18 wherein said second material is selected from the group
442 consisting of silica, calcium carbonate, titanium dioxide, barium sulfate, calcium sulfate and
443 mixtures thereof.

444 **Claim 21**

445 The article of claim 17 wherein said first chemical composition has a particle size in the
446 range of from about 10 to about 60 mesh US Sieve series.

447 **Claim 22**

448 The article of claim 20 wherein said first material is reacted with a cross linking agent
449 selected from the group consisting of polyaziridines, carbodiimides, epoxies and metal ion cross
450 linkers.

451 **Claim 23**

452 The article of claim 20 wherein said first chemical composition has a particle size in the
453 range of from about 10 to about 60 mesh US Sieve series.

454 **Claim 24**

455 The article of claim 19 wherein said cross linking agent is a polyaziridine.

456 **Claim 25**

457 The article of claim 22 wherein said cross linking agent is a polyaziridine.

458 **Claim 26**

459 The article of claim 19 wherein said first chemical composition has a particle size in the
460 range of from about 10 to about 60 mesh US Sieve series.

461 **Claim 27**

462 The article of claim 22 wherein said first chemical composition has a particle size in the
463 range of from about 10 to about 60 mesh US Sieve series.

464 **Claim 28**

465 The article of claim 22 wherein said second material is silica.

466 **Claim 30**

467 The article of claim 28 wherein said cross linking agent is a polyaziridine.

468 **Claim 34**

469 The article of claim 20 wherein said first material is reacted with a polyaziridine cross
470 linking agent.

471 **Claim 35**

472 The article of claim 21 wherein said first material is reacted with a polyaziridine cross
473 linking agent.



1 P A T E N T

2 IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

3 In re Application of:) Atty. Dkt. No. 00.05.12.1
4 Steven B. Laramay and) Art Unit: 1617
5 John H. Schneider)
6 Serial No. 09/770,931) Examiner: Gina C. Yu
7 Filing Date: January 26, 2001)
8 Title:) Duncan, Oklahoma 73534
9)
10 ENCAPSULATED COMPOSITIONS) Date: January 27, 2004

11
12 **BRIEF ON APPEAL**

13 Commissioner for Patents
14 P.O. Box 1450
15 Alexandria, Virginia 22313-1450

16 Sir:

17 **INTRODUCTION**

18 The Second Final Rejection of the claims of the above application was mailed by the
19 Patent Office on September 23, 2003. Applicants' response to the Second Final Rejection was
20 mailed on November 5, 2003. The reply of the Examiner to the response was mailed by the
21 Patent Office on December 15, 2003. The Notice of Appeal from the Second Final Rejection
22 was mailed on December 15, 2003. This is Appellants' Brief in support of the Appeal from the
23 Second Final Rejection.

24 This Brief is filed in triplicate, and is accompanied by the prescribed fee of \$330.00.

25 **REAL PARTY IN INTEREST**

26 Fritz Industries, Inc., a Corporation of the State of Texas, is the real party in interest.

27 **RELATED APPEALS AND INTERFERENCES**

28 There are no known appeals and/or interferences related to the subject matter of the
29 claims appealed herein.

30 **STATUS OF CLAIMS**

31 A total of 19 claims are pending in this application including one independent claim 16
32 and eighteen dependent claims 17 through 30, and 32 through 35. Dependent claim 31 has
33 been canceled. Dependent claims 29, 32 and 33 have been withdrawn from consideration.

34 Claims 16-28, 30, 34 and 35 stand rejected. The rejection of claims 16-28, 30, 34 and 35 is
35 appealed.

36 The dependency pattern of the claims on appeal is attached hereto as Enclosure I. A
37 copy of the claims involved in the appeal is attached as Enclosure II. The content of Enclosure
38 II is taken from Applicants' response mailed July 8, 2003.

39 SUMMARY OF INVENTION

40 (The parenthetical information indicates disclosure support of
41 each claim appealed by page, P, and line, L.)

42 This invention is an article of manufacture comprised of a capsule and a chemical
43 composition. The capsule comprises a membrane wall surrounding a hollow interior. The
44 composition is enclosed in the hollow interior of the capsule. The membrane wall is permeable
45 to water and aqueous solutions, but is not soluble in aqueous liquids. (P.5, L.105-110, Claim
46 16) The composition enclosed in the hollow interior of the capsule is, preferably, a solid, water-
47 soluble chemical. The composition is not reactive with, soluble in nor a solvent for the
48 membrane wall. (P.6, L.124-126, L. 141, Claim 16)

49 The membrane wall is comprised of a first material or is a composite material comprised
50 of the first material and a second material different from the first material. The membrane wall
51 is not reactive with, soluble in or a solvent for the composition enclosed in the capsule, or with a
52 liquid or second composition in contact with the exterior of the membrane wall. (P.5, L. 110-123,
53 Claim 16, Claim 18) The composite material is present in the article in an amount in the range
54 of from about 10 to about 50 percent composite material by weight of the article. (P.8, L.236-
55 239, Claim 18)

56 The first material is a urethane/vinyl hybrid polymer. (P.5, L.115, Claim 16) The first
57 material is disclosed in U.S. Patent 5,173,526 to Vijayendran et al. (P.7, L.154-171; P.8, L.172-
58 180, Claim 16) The first material is not a mere blend of a polyurethane and an acrylic polymer.
59 (P.7, L.170-171)

60 The first material can be cross linked with polyaziridines, carbodiimides, epoxies and
61 metal ion cross linkers. (P.8, L.181-186, Claim 19, Claim 22, Claim 24, Claim 25, Claim 30,
62 Claim 34, Claim 35)

63 The second material (in the composite material) is a particulate solid having a particle
64 size in the range of from about 1 to about 15 microns present in the composite material in an
65 amount in the range of from an amount greater than about 0 to about 50 percent of the
66 particulate solid by total weight of the composite material. (P.8, L.187-195, Claim 18)

67 The second material (in the composite material) can include silica, calcium carbonate,
68 titanium dioxide, barium sulfate, calcium sulfate and mixtures thereof. (P.9, L.198-199, Claim
69 20, Claim 28)

The chemical composition enclosed in the capsule can be substantially any water-soluble material including those selected from the group consisting of alkali, alkaline earth metal and ammonium halides, oxides, hydroxides, carbonates, bicarbonates, perborates, peroxides, percarbonates, bisulfates and persulfates. (P.9, L.200-207, Claim 17) The chemical composition has a particle size in the range of from about 10 to about 60 mesh US Sieve series. (P.10, L. 243 to P.11, L.247, Claim 21, Claim 23, Claim 26, Claim 27)

In use, the exterior surface of the capsule is placed in contact with a liquid containing water. The membrane wall is not reactive with, soluble in nor a solvent for liquid in contact with the exterior surface of the capsule. The water diffuses through the membrane wall, contacts and dissolves the composition in the interior of the capsule. The composition, now in aqueous solution, then diffuses through the membrane wall to the exterior of the capsule. During the diffusion, which can extend over a period of time, the capsule remains intact. It does not burst. The transfer of the composition from the interior of the capsule through the membrane wall to the exterior of the capsule is gradual in nature. The transfer is not sudden in nature. (P.12, L.269 to P.13, L.294)

ISSUES

ISSUE 1

87 The combination of Mitchell and Vijayendran to reject the claims is not proper. The
88 combination of Mitchell and Vijayendran, taken as a whole, does not suggest the claimed
89 subject matter.

ISSUE 2

91 There is no suggestion in either Mitchell or Vijayendran to combine one with the other to
92 produce the claimed subject matter.

ISSUES 3, 4 and 5

94 The Examiner, in the Second Final Rejection, rejected claims 16-28, 30, 34 and 35
95 under 35 USC 103(a) as being obvious over US Patent 5,741,433 to Mitchell in view of US
96 Patent 5,173,526 to Vijayendran. No other references were relied upon by the Examiner in the
97 rejection.

98 In contrast, the Examiner, in the Office Action mailed May 12, 2003, which next
99 preceded the Second Final Rejection, rejected claims 16, 17 and 21 under 35 U.S.C. 103(a) as
100 being obvious over Mitchell in view of Vijayendran. Mitchell and Vijayendran were combined
101 with other references to reject the balance of the claims. Those other references were US
102 Patent 4,756,844 to Walles and US Patent 6436540 B1 to Garcia.

103 The Examiner combined Mitchell, Vijayendran and Walles to reject claims 18, 20, 23,
104 34, and 35. The Examiner combined Mitchell, Vijayendran, Walles and Garcia to reject claims
105 19, 22, 24, 25, 26, 27, 28 and 30.

106 **ISSUE 3**

107 Walles and Garcia have been withdrawn and **are no longer references** against any
108 claims, and specifically claims 18,19, 20, 22, 23, 24, 25, 26, 27, 28, 30, 34 and 35. The basis
109 for rejecting these claims, if any, must be suggested in the combination of Mitchell and
110 Vijayendran.

111 **ISSUE 4**

112 There is no reference of record disclosing a composite material comprised of a
113 combination of a first material and a second material to form the membrane wall of a capsule.
114 The particle size of the second material is greater than submicron. Dependent claim 18, and
115 those which depend from claim 18, contain limitations regarding the composite material and the
116 particle size of the second material. Accordingly, claims 18, 20, 22, 23, 25, 27, 28, 30 and 34
117 are drawn to subject matter not disclosed any reference of record. The basis for rejecting these
118 claims, if any, must be suggested in the combination of Mitchell and Vijayendran.

119 **ISSUE 5**

120 There is no reference of record disclosing that the urethane/vinyl hybrid polymer which
121 is disclosed in Vijayendran, and specifically named in claim 16, can or should be cross linked.
122 Vijayendran does not disclose that the urethane/vinyl hybrid polymer can be or should be cross-
123 linked. Dependent claim 19, and those which depend from claim 19, dependent claim 22, and
124 those which depend from claim 22, claim 34 and claim 35 contain limitations regarding cross
125 linking the urethane/vinyl hybrid polymer. Accordingly, claims 19, 24, 26, 22, 25, 27, 28, 30, 34
126 and 35 are drawn to subject matter not disclosed in any reference of record. The basis for
127 rejecting these claims, if any, must be suggested in the combination of Mitchell and
128 Vijayendran.

129 GROUPING OF CLAIMS

130 Claims 16-28, 30, 34 and 35 are all placed by the Examiner in a single group and are
131 the subject of a single rejection. The claims of this single group do not stand or fall together.
132 There are several different claim groups included within the single group which are separately
133 patentable. These claim groups are:

134 Claim 16, and those which depend therefrom;

135 Claim 18, which includes the limitations of claims 16 and 17, and those which depend
136 from claim 18;

137 Claim 19, which includes the limitations of claims 16 and 17, and those which depend
138 from claim 19;

139 Claim 22, which includes the limitations of claims 18 and 20, and those which depend
140 from claim 22;

Claim 34, which includes the limitations of claims 18 and 20;

Claim 28, which includes the limitations of claim 22, and those which depend from claim 28; and

Claim 35, which includes the limitations of claims 16, 17 and 21.

ARGUMENT

The problem confronted by Appellants for solution was to identify a material useful to form the wall of a capsule having controlled release properties. The prior art at the time of the invention did include capsules which did exhibit controlled release properties. These capsules did exhibit a variety of release mechanisms including external crushing, internal rupture and disintegration of the wall material and diffusion of liquid through the wall material. (P.2, L.29-38; P. 3, L.59-63) The essential differences between the prior art capsules has been, and is, the material of construction of the wall. (P.2, L.45-48)

The problem confronted herein was to make a capsule having controlled release properties, wherein the material in the wall of the capsule would function by diffusion while, at the same time, having the ability to resist a caustic environment exhibited by the chemical enclosed in the capsule and by the chemical in contact with the exterior of the capsule. Such chemicals would include organic and inorganic acids, bases, salts and oxidizers. In short, Appellants were seeking to find a universal material.

ISSUE 1

The combination of Mitchell and Vijayendran to reject the claims is not proper.

Appellants claim a hollow capsule which contains a chemical composition, wherein the wall of the capsule is a membrane comprised of a polyurethane-vinyl polymer dispersion. In the invention an aqueous liquid diffuses through the membrane wall to the interior of the capsule, dissolves the chemical composition to form a solution which then diffuses through the membrane wall to thereby release the composition from the interior of the capsule. Applicants discovered this property of a membrane wall made with the polyurethane-vinyl polymer dispersion and realized its universal utility in a capsule having controlled release properties. The membrane wall, as set forth in independent **claim 16**, is comprised of a urethane/vinyl hybrid polymer which is disclosed in U.S. Patent 5,173,526 to Vijayendran. The chemical composition held in the capsule can include a wide variety of different chemical species such as enzymes, organic and inorganic acids, bases, salts and oxidizing agents. (P.6, L.124-135)

Mitchell does not disclose or suggest "a polyurethane-vinyl polymer dispersion" and, accordingly, cannot suggest that a polyurethane-vinyl polymer dispersion is useful as a film former having controlled release properties. (Mitchell, col. 3, lines 43-45, col. 6, lines 1-5)

Mitchell did not make or suggest the discovery of this invention and made no suggestion of the universal utility of the material.

177 Mitchell, in Table 2, discloses a variety of specific compositions including at least two
178 which, "were not acceptable coating materials due to the sticky nature of the polymers" and two
179 which, "were found to be non film formers." The two "sticky" polymers were vinyl polymers.
180 One of the "non film formers" was a vinyl polymer. Table 2 of Mitchell also listed two
181 polyurethanes, but no working example is provided, and no comment is made with regard to the
182 utility of a polyurethane as a film former having controlled release properties.

183 Mitchell makes no suggestion that a combination of the sticky/non film former vinyl with
184 the polyurethane would produce a satisfactory membrane. In fact, as previously noted, "The
185 first material is not a mere blend of a polyurethane and an acrylic polymer. (P.7, L.170-171)".
186 It is submitted that the factual data actually provided by Mitchell teaches away from such a
187 combination. Mitchell does not suggest "a polyurethane-vinyl polymer dispersion" and it is not
188 reasonable to assert that he does. The negative teaching of Mitchell is clearly indicated by the
189 disclosed sticky nature and lack of utility of some vinyl polymers and the notable absence of
190 any display of enthusiasm for polyurethane.

191 Mitchell stated, "Any type of coating material conventionally known in the art which
192 provides controlled-release properties may be used in the present invention." (Col. 3, lines 43-
193 45) In this regard, the composition disclosed and claimed by Vijayendran was known in the art
194 on the date that Mitchell et al filed their application. However, there is no indication in Mitchell
195 or Vijayendran that the composition of Vijayendran on that date was "conventionally known in
196 the art" to be a film forming material which provides controlled-release properties. Mitchell
197 failed to recognize the utility of the Vijayendran material and the Patent Office placed the two
198 patents in two different technical classifications. It was left to Applicants to discover the
199 universal utility of the composition disclosed by Vijayendran.

200 Vijayendran does disclose a flexible surface made from a urethane/vinyl hybrid polymer
201 dispersion which will protect a substrate, such as paper, metals, plastics and wood, from
202 solvents, corrodants and abrasives. It is inherent in this teaching that water, a solvent, will not
203 pass through the surface to contact the substrate. Vijayendran does not teach the opposite.
204 Thus, there is no suggestion in this teaching that water will pass through a film made with the
205 very same composition. In short, there is no suggestion in this teaching that the composition of
206 Vijayendran was, "conventionally known in the art" to be a film forming material which provides
207 controlled-release properties.

208 The Examiner has placed considerable emphasis on the flexible nature of the
209 Vijayendran material as a coating for substrates at least within the context of the Vijayendran
210 disclosure. The Examiner leaped, with no defined reason to justify the leap, from a "flexible
211 surface" which does protect a substrate, to a membrane having diffusion properties which does
212 not protect a substrate. Any number of materials are flexible, but all such materials have no
213 known function as a membrane. Steel, leather, paper, aluminum foil and rubber are but a few
214 flexible materials which are not conventionally known in the art to provide controlled-release
215 properties. The fact of flexibility does not translate into a film which permits diffusion.

216 As employed in the article of this invention, the Vijayendran material **DOES NOT**
217 **PROTECT THE SUBSTRATE** (the composition enclosed in the capsule) from anything. If it
218 did, then the material would not be operable in this invention. Vijayendran does not teach and

219 does not suggest the use of his composition as a membrane wall of a capsule. It is not the purpose of a capsule having controlled-release properties to protect the substrate.
220

221 The combination of Mitchell and Vijayendran, taken as a whole, does not suggest the claimed subject matter.
222

223 **ISSUE 2**

224 There is no suggestion in either Mitchell or Vijayendran to combine one with the other to produce the claimed subject matter.
225

226 It is accepted in the law of obviousness that a reference must clearly suggest to a
227 person skilled in the art at the time of the invention, that a feature disclosed in one reference
228 may be combined with features disclosed in another reference in order to obtain the claimed
229 subject matter. What is resident in the disclosures of Mitchell and Vijayendran to suggest that a
230 combination of the two would produce the invention claimed herein? Nothing. The essential
231 recognition is contained in the disclosure of Applicants. That teaching cannot be employed by
232 the Examiner in hindsight.

233 **What do Mitchell et al disclose?**

234 A membrane wall which will permit water to pass through it from the exterior into the
235 interior of the capsule, and through it from the interior to the exterior of the capsule.

236 **What do Mitchell et al fail to disclose?**

237 A membrane wall comprised of a urethane/acrylic hybrid polymer.
238 Crosslinking anything.
239 A membrane wall containing a particulate solid or any other second material.

240 **What is the novel aspect of Mitchell et al?**

241 Based upon the content of claim 1 of Mitchell, it is clear that the novel aspect of Mitchell
242 et al is a polymeric coating material for a capsule, "comprising terpolymers containing vinyl
243 acetate, vinyl versatate, and alkyl(meth)acrylate monomer subunits."

244 **What do Vijayendran et al disclose?**

245 A flexible surface which will protect a substrate, such as paper, metals, plastics, and
246 wood, from solvents, corrodants and abrasives. Inherent in this disclosure is a requirement that
247 water shall not pass through the surface to thereby contact the substrate.

248 **What do Vijayendran et al fail to disclose?**

249 The use of a urethane/acrylic hybrid polymer as a membrane wall of a capsule.
250 The use of a urethane/acrylic hybrid polymer which will not protect a substrate.
251 Crosslinking a urethane/acrylic hybrid polymer.

252 Combining the urethane/acrylic hybrid polymer with a particulate solid or any other
253 second material.

254 There is no suggestion in Mitchell to replace his novel polymeric coating, which does
255 permit water to pass through it, with a urethane/acrylic hybrid polymer, which does not permit
256 water to pass through it. There is no suggestion in Vijayendran to substitute a urethane/acrylic
257 hybrid polymer, which does protect a substrate, for terpolymers containing vinyl acetate, vinyl
258 versatate, and alkyl(meth)acrylate monomer subunits, which do not protect a substrate.

259 Given the above, what is the reason to combine Mitchell and Vijayendran? The two
260 patents solve different problems. The two patents employ different chemistry to solve the
261 different problems. What is disclosed in Mitchell to suggest to a person skilled in the capsule
262 art to combine Mitchell and Vijayendran to obtain a capsule? Similarly, what is disclosed in
263 Vijayendran to suggest to a person skilled in the capsule art to combine Mitchell and
264 Vijayendran to obtain a capsule which will permit water to pass through its wall from the exterior
265 into the interior, and through the wall from the interior to the exterior? Vijayendran disclose a
266 urethane/vinyl hybrid polymer to protect what is plainly a planar substrate, such as paper, from
267 a solvent. There is no suggestion in Vijayendran that water will diffuse through a film made with
268 that polymer. There is no suggestion that a film could even be made with that polymer.
269 Mitchell and Vijayendran are in different classes of art. The only connection between Mitchell
270 and Vijayendran is found in the disclosure of this invention.

271 THERE IS NO REASON TO COMBINE MITCHELL AND VIJAYENDRAN. THE
272 EXAMINER HAS IMPROPERLY EMPLOYED THE DISCLOSURE OF THIS INVENTION AS A
273 GUIDE TO REJECT THE CLAIMS OF THIS INVENTION. THE REJECTION IS FATALLY
274 FLAWED AND SHOULD BE WITHDRAWN.

275 ISSUE 3

276 Walles and Garcia have been withdrawn and **are no longer references** against any
277 claims, and specifically claims 18,19, 20, 22, 23, 24, 25, 26, 27, 28, 30, 34 and 35. The basis
278 for rejecting these claims, if any, must be suggested in the combination of Mitchell and
279 Vijayendran.

280 The Examiner, in the paper mailed December 15, 2003, stated that,

281 "No rejection in the May 11, 2003 (sic) Office action has been withdrawn, as it is
282 clearly manifested in the rejection statement that claim rejection was made under
283 35 U.S.C. § 103 (a) over Mitchell (US 5741433) in view of Vijayendran et al. (US
284 5173526) is maintained for the reasons of record."

285 Refer to the Office Action mailed May 12, 2003, and note that there was not one, but
286 there were **three** rejections under section 103. In the first rejection, claims 16, 17 and 21 were
287 rejected over Mitchell in view of Vijayendran. In the second rejection, claims 18, 20, 23, 34, and
288 35 were rejected over the combination of Mitchell, Vijayendran and Walles (US 4,756,844). In
289 the third rejection, claims 19, 22, 24, 25, 26, 27, 28 and 30 over the combination of Mitchell,
290 Vijayendran and Garcia(US 6,436,540 B1).

291 The Second Final Rejection does not mention Walles or Garcia. The Second Final
292 Rejection does not even mention the three separate rejections. The Second Final Rejection,
293 instead, states a **new ground of rejection** wherein all of the claims are now rejected under the
294 combination of Mitchell in view of Vijayendran. The Second Final Rejection is at least suspect
295 in view of the new ground and for that reason it should be dismissed. To quote the Examiner,
296 the only thing "clearly manifested" in the May 2003 rejection is that claims 16, 17 and 21 were
297 rejected under the combination of Mitchell and Vijayendran and no others. Accordingly, claims
298 18, 19, 20, 22, 23, 24, 25, 26, 27, 28, 30, 34 and 35, as stated in Applicants' response to the
299 Second Final Rejection was mailed on November 5, 2003, should stand allowed. At best, the
300 only basis for rejecting claims 18, 19, 20, 22, 23, 24, 25, 26, 27, 28, 30, 34 and 35, if any, must
301 be suggested in the combination of Mitchell and Vijayendran.

302 ISSUE 4

303 There is no reference of record disclosing a composite material comprised of a
304 combination of a first material and a second material to form the membrane wall of a capsule.
305 The particle size of the second material is greater than submicron. Dependent claim 18, and
306 those which depend from claim 18, contain limitations regarding the composite material and the
307 particle size of the second material. Accordingly, claims 18, 20, 22, 23, 25, 27, 28, 30 and 34
308 are drawn to subject matter not disclosed any reference of record. The basis for rejecting these
309 claims, if any, must be suggested in the combination of Mitchell and Vijayendran.

310 The Examiner in the Office Action mailed May 12, 2003, stated,

311 "Mitchell and Vijayendran, discussed above, fails to teach using
312 the second materials in the encapsulation as recited in the instant
313 claims."

314 The Examiner also stated in the Office Action mailed May 12, 2003,

315 "Walles teaches controlled-release composition having a water
316 permeable membrane comprising submicron particles
317 (anticoalescent agents), which encapsulate a liquid or solid active
318 agent."

319 In view of the action and the express statements of the Examiner, what is there to justify
320 the rejection of claims 18, 20, 22, 23, 25, 27, 28, 30 and 34? Even, if Walles was still a
321 reference, a disclosure of "submicron particles" cannot be said to suggest particles greater
322 than submicron.

323 ISSUE 5

324 There is no reference of record which teaches or suggests that the urethane/vinyl hybrid
325 polymer, once having been made in accordance with the method disclosed in Vijayendran, can
326 or should be cross linked. The Examiner has not pointed to any such teaching in that patent.
327 Dependent claim 19, and those which depend from claim 19, dependent claim 22, and those
328 which depend from claim 22, claim 34 and claim 35 contain limitations regarding cross linking

329 the urethane/vinyl hybrid polymer. Accordingly, claims 19, 24, 26, 22, 25, 27, 28, 30, 34 and 35
330 are drawn to subject matter not disclosed and not suggested in any reference of record. The
331 basis for rejecting these claims, if any, must be suggested in the combination of Mitchell and
332 Vijayendran.

333 Specific Response to Comments of Examiner

334 Contrary to the assertions of the Examiner, the sticky polymer disclosed by Mitchell is
335 not the polymer disclosed by Vijayendran.

336 That the polymer of Vijayendran can be used as claimed in this invention does not "flow
337 naturally" from the assertion of Vijayendran that the polymer forms a flexible surface which will
338 protect a substrate, such as paper, metals, plastics, and wood, from solvents, corrodants and
339 abrasives. A flexible protective cover on a substrate does not, by that assertion, teach or
340 suggest a film on a capsule which does **not** protect material enclosed in the capsule.

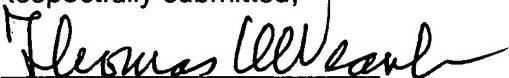
341 Neither Vijayendran nor Appellants say anything at all about the permeability of the
342 polymer as a material of construction. Vijayendran does talk about a coating which is applied
343 by "conventional flexographic or gravure methods." Applicants talk about a film made by a
344 fluidized bed process. The manufacturing techniques are different. One technique produces a
345 coating which obviously resists diffusion. The other technique produces a film which does not
346 resist diffusion. In this regard claim 16 talks about a membrane which is permeable. There is
347 nothing in the claim which says anything at all about the permeability of the material itself.

348 The "good balance" argument asserted by the Examiner is **specious**. Vijayendran did
349 state that his coating has good balance. That statement cannot be interpreted to mean that
350 Vijayendran deliberately placed defects in his continuous coating. Such defects would certainly
351 defeat the purpose of his protective coating. If Vijahendran had really intended to manufacture
352 his protective coating in such a way as to compromise the integrity of the coating, then he
353 would have been explicit. Remember, Vijahendran specifically disclosed a coating which is
354 applied by "conventional flexographic or gravure methods." He said nothing about modifying
355 the coating or the method of making it.

356 There is nothing in the art that specifically teaches that a protective coating, such as
357 taught by Vijayendran, also permits diffusion. If there is, then the Examiner has not cited it.
358

359 This application is in condition for allowance. Reconsideration and allowance is
360 requested.

361 Respectfully submitted,

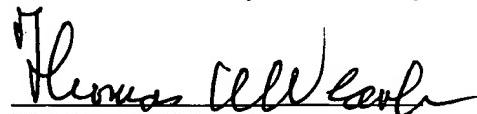
362 
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CERTIFICATE OF MAILING

369 I hereby certify that the within and foregoing document, together with the attachments referred
370 to therein, if any, is being deposited by the undersigned with the United States Postal Service
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372 Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450 on the date written just below my
373 signature.

374
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Thomas R. Weaver
Registration No. 25,613


Date

380

ENCLOSURE I

381

DEPENDENCY CLAIM PATTERN

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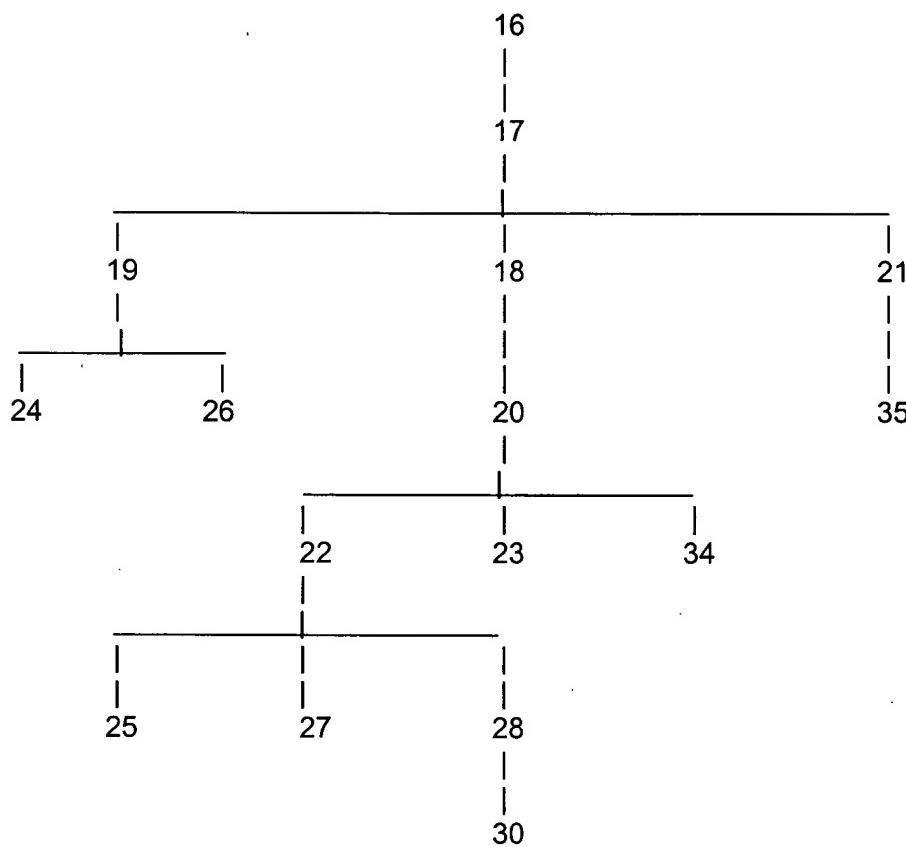
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ENCLOSURE II

COPY OF CLAIMS INVOLVED IN APPEAL

408 **Claim 16**

409 An article of manufacture comprising a capsule and a first
410 chemical composition, said capsule having a hollow interior and an enclosing membrane wall
411 having an interior surface and an exterior surface, wherein said first chemical composition is
412 enclosed within said hollow interior of said capsule;

413 said membrane is permeable to water and aqueous solutions, but is not soluble in
414 aqueous liquids, and includes at least a first material comprised of a polyurethane-vinyl polymer
415 dispersion prepared by the simultaneous polymerization of a vinyl monomer and chain
416 extension of an isocyanate-terminated polyurethane pre-polymer in the presence of water to
417 thereby form a urethane/vinyl hybrid polymer; and

418 said first chemical composition is comprised of a solid, water-soluble chemical
419 composition which is not reactive with, soluble in or a solvent for said membrane.

420 **Claim 17**

421 The article of claim 16 wherein said first chemical composition is selected from the
422 group consisting of alkali, alkaline earth metal and ammonium halides, oxides, hydroxides,
423 carbonates, bicarbonates, perborates, peroxides, percarbonates, bisulfates and persulfates.

424 Claim 18

425 The article of claim 17 wherein said membrane is a composite material comprised of
426 said first material and further comprised of a second material, wherein said first material is a
427 supporting matrix for said second material which is fixed in said supporting matrix;

428 said second material is a particulate solid, having a particle size in the range of from
429 about 1 to about 15 microns, present in said composite material in an amount in the range of

430 from an amount greater than about 0 to about 50 percent of said particulate solid by total weight
431 of said composite material;

432 said second material is different from said first material, and is not reactive with, soluble
433 in or a solvent for said first material or said first chemical composition; and
434 said composite material is present in said article in an amount in the range of from about
435 10 to about 50 percent by weight of said composite material by weight of said article.

436 **Claim 19**

437 The article of claim 17 wherein said first material is reacted with a cross linking agent
438 selected from the group consisting of polyaziridines, carbodiimides, epoxies and metal ion cross
439 linkers.

440 **Claim 20**

441 The article of claim 18 wherein said second material is selected from the group
442 consisting of silica, calcium carbonate, titanium dioxide, barium sulfate, calcium sulfate and
443 mixtures thereof.

444 **Claim 21**

445 The article of claim 17 wherein said first chemical composition has a particle size in the
446 range of from about 10 to about 60 mesh US Sieve series.

447 **Claim 22**

448 The article of claim 20 wherein said first material is reacted with a cross linking agent
449 selected from the group consisting of polyaziridines, carbodiimides, epoxies and metal ion cross
450 linkers.

451 **Claim 23**

452 The article of claim 20 wherein said first chemical composition has a particle size in the
453 range of from about 10 to about 60 mesh US Sieve series.

454 **Claim 24**

455 The article of claim 19 wherein said cross linking agent is a polyaziridine.

456 **Claim 25**

457 The article of claim 22 wherein said cross linking agent is a polyaziridine.

458 **Claim 26**

459 The article of claim 19 wherein said first chemical composition has a particle size in the
460 range of from about 10 to about 60 mesh US Sieve series.

461 **Claim 27**

462 The article of claim 22 wherein said first chemical composition has a particle size in the
463 range of from about 10 to about 60 mesh US Sieve series.

464 **Claim 28**

465 The article of claim 22 wherein said second material is silica.

466 **Claim 30**

467 The article of claim 28 wherein said cross linking agent is a polyaziridine.

468 **Claim 34**

469 The article of claim 20 wherein said first material is reacted with a polyaziridine cross
470 linking agent.

471 **Claim 35**

472 The article of claim 21 wherein said first material is reacted with a polyaziridine cross
473 linking agent.